

Claims

1. A method for detecting failure in a piezoelectric element on a head suspension for a disk drive comprising the steps of:
 - a. clamping one end of a head suspension under test, the head suspension having a piezoelectric element thereon;
 - b. mechanically displacing and rapidly releasing the other end of the head suspension under test;
 - c. monitoring an electrical output of the piezoelectric element on the head suspension under test; and
 - d. comparing the electrical output of the piezoelectric element on the head suspension under test with a predetermined output corresponding to a properly functioning piezoelectric element mounted on the same type of head suspension to determine if the piezoelectric element on the head suspension under test is properly functioning.
2. The method of claim 1 wherein step d) comprises comparing the electrical output of the piezoelectric element on the head suspension under test with a predetermined voltage level.
3. Apparatus for detecting failure in a piezoelectric element on a head suspension for a disk drive comprising:
 - a. a clamp connected to one end of a head suspension under test, the head suspension having a piezoelectric element thereon;
 - b. a motion actuator in mechanical contact with the other end of the head suspension under test and operative to mechanically displace and rapidly release the other end of the head suspension under test;
 - c. a signal processor system electrically connected to an output of the piezoelectric element on the head suspension under test and operative to compare the output of the piezoelectric element on the head suspension under test with a predetermined output

corresponding to a properly functioning piezoelectric element mounted on the same type of head suspension to determine if the piezoelectric element on the head suspension under test is properly functioning.

4. The apparatus of claim 3 wherein the head suspension under test oscillates at a natural frequency after step b) is performed, and the output of the piezoelectric element on the head suspension under test is a waveform having a fundamental periodic frequency with at least one of a group of distinguishing amplitude characteristics corresponding to individual failure modes from the group of adhesive fracture between the element and the suspension, fracture of the piezoelectric element itself, poling failure of the piezoelectric element, and a broken electrical connection in a wire bond to the piezoelectric element.